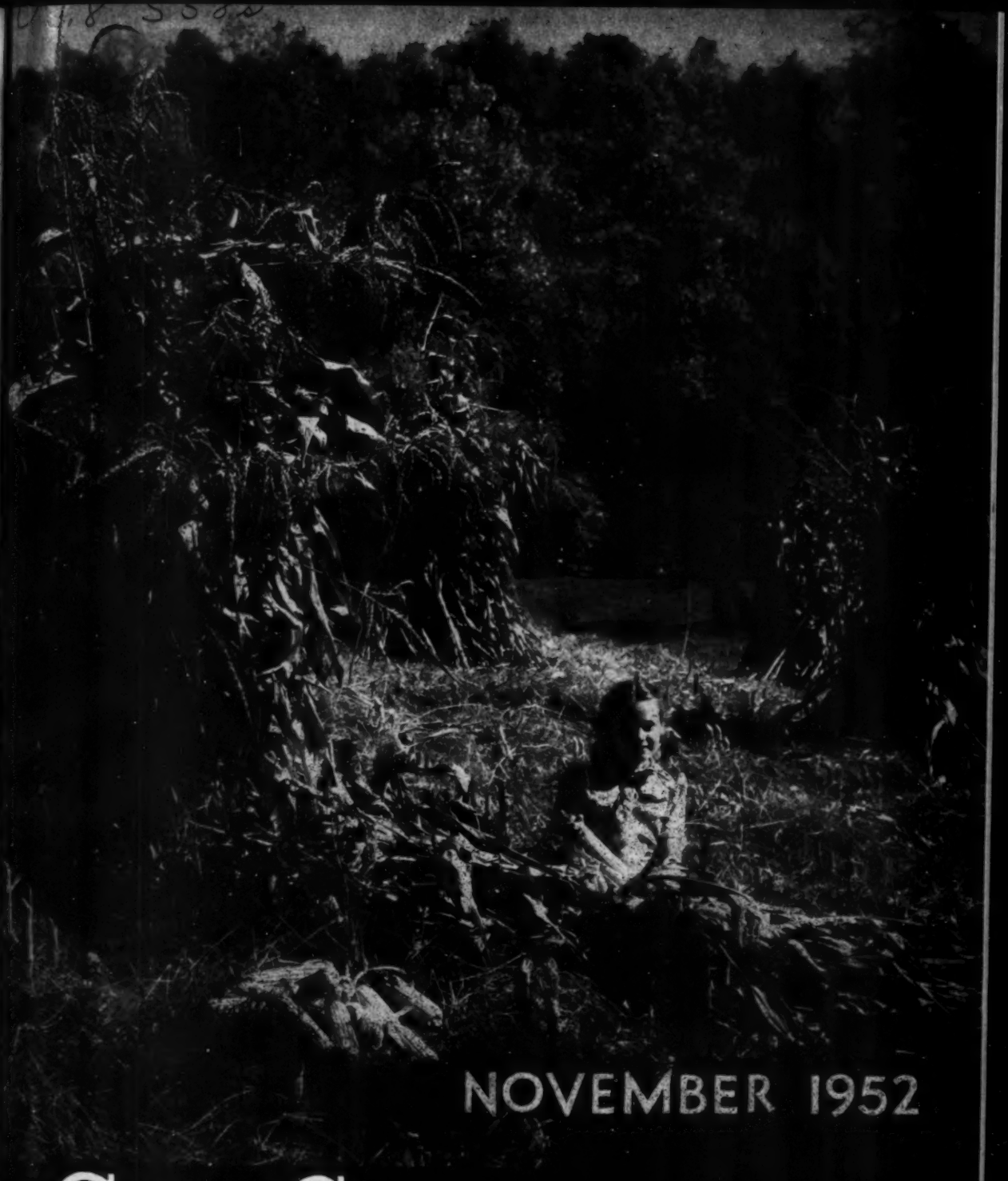

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★ THIS MONTH ★

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WELLINGTON BRINK
Editor

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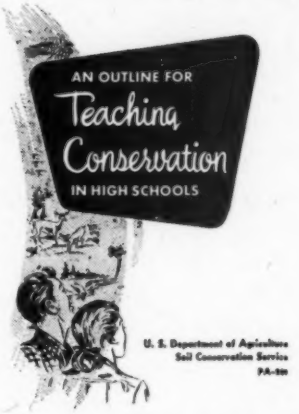

By WILLIAM H. LEMMEL
Superintendent of Schools
Baltimore, Md.

The bulletin, "An Outline for Teaching Conservation in High Schools," fills an important gap in resource materials for secondary school teachers. In this publication, the Soil Conservation Service has recognized the importance of the integrated approach. The authors might have taken the view that only the physical sciences are concerned with conservation. Instead, they fortunately followed the belief that conservation is also related to the social studies, mathematics, the biological sciences, the language arts, health, the fine and industrial arts, and other fields in the secondary curriculum.

(Continued on page 89)

FRONT COVER.—Harvest scene, hybrid corn, in a contour-cultivated field on the farm of George Van Syckle, a district farmer in Harrison County, W. Va. The photographer is Anne M. Ware.

All orders go to the Superintendent of Documents, Government Printing Office, Washington 25, D. C.

STATE ASSOCIATION RUNS OWN NURSERY

By A. B. LINFORD

Nursery headquarters.

HERE is another tale of the resourcefulness of district supervisors. It comes from North Dakota. And it recounts a most ambitious project, which involved all of the soil conservation districts in the State, required the outlay of substantial sums of money, and resulted in the district ownership and operation of a highly successful tree nursery.

The supervisors initially had no desire to operate a nursery. But they faced a problem posed by a shortage in the supply of tree-planting materials adapted to the area and of the desired quality. Even so, they did not hurry to undertake nursery operations. Conferences with many people, including local nurserymen, preceded their action.

The nearby town of Oakes is a dependable source of labor.

North Dakota, like all Plains States, is subject to extreme variations in temperature. The range is from 50° below zero in winter to 115° F. in summer. High winds may occur at any time of year. The State has little native timber, so trees to provide protection from winds for farm buildings, livestock, and, in many cases, cropland and growing crops must be planted. Tree-planting materials produced far east or south of North Dakota are not hardy enough for the climate and cannot be used.

Tree planting began almost with the beginning of settlement here. Congress provided early aid through the Timber Claim Act, under which a settler could acquire title to a 160-acre homestead by planting 10 acres of trees. Many fine groves resulted, but the majority of those early plantings failed to survive. Planting of trees not adapted to the area and lack of care of the trees after they were in the ground are blamed for the high rate of failure.

Later, Congress provided other aid to encourage tree planting in the Plains by passage of the Clark-McNary Act, which enabled farmers to buy trees at low cost. In 1935 the Prairie States Forestry Project was launched for the planting of field shelterbelts, the Soil Conservation Service began helping farmers establish farmstead windbreaks as well as field-protection plantings, and PMA began making conservation payments to help defray the costs of planting and care. Later, soil conservation districts began to acquire tree-planting machines for rental to cooperators.

This was the beginning of the present tree-planting movement in North Dakota. For the first time farmers received the direct help of trained technicians on the proper design and location of tree plantings, on selection of the best species according to the soil and climate, and on planting and care. In 1942 the Prairie States Forestry Project was closed down and its functions transferred to SCS.

The demand for trees has risen rapidly in recent years and has passed far beyond the sources of supply. Soil conservation district cooperators are now planting from 6 to 7 million trees annually in connection with their farm

Note.—The author is district conservationist, Soil Conservation Service, Wahpeton, N. Dak.

Sprinklers irrigate from four good wells.

and ranch conservation plans. This is about 3 million more than the number of adapted, good-quality trees available from commercial nurseries and other local sources.

Start of the districts-nursery idea came March 28, 1946, when supervisors representing the Antelope, South Richland, Sargent County, Wild Rice, and Ransom County Soil Conservation Districts held a joint meeting at Milnor. These districts are in the southeast corner of the State. At that meeting, a joint resolution was passed asking the Soil Conservation Service to aid in reopening the abandoned nursery at Oakes, which was formerly operated by the Prairie States Forestry Project but closed down when the project was discontinued.

Oakes also is in the southeastern part of the State. The nursery site near there is considered ideal for trees. Soil is sandy, water is plentiful, and nearby Oakes assures a dependable labor supply. Aided by A. E. Ferber, then superintendent of the SCS nursery at Mandan and now regional forester for SCS, the supervisors made careful estimates of the costs of reopening and operating the nursery. Glen Swanson, chairman of the board of supervisors of the South Richland Soil Conservation District, spark plug of the nursery venture and now chairman of the nursery board, got pledges of funds from other district boards.

Nothing came of this first effort. But in 1947 the State Association of Soil Conservation Districts came through with full support at its annual meeting. Later that year, when funds were needed, the districts provided loans ranging from $47 to $1,000 each—a total of $13,075. A board of managers was set up, consisting of five district supervisors, a member of the State Soil Conservation Committee, and two Soil Conservation Service employees. One of these SCS men is the manager of the Mandan nursery, and the other is a district conservationist, whose duties are to give technical guidance.

Figuratively, dirt began to fly in the spring of 1947. N. A. Devick, who ran the nursery for the Prairie States Forestry Project, was brought in as manager. The supervisors negotiated the purchase of 50 acres, which was the original nursery. The four gravel-packed irrigation wells were cleaned and put back into operation. Some seed, used machinery, and dismantled army barracks were obtained, and the nursery was back in business.

Two more loans from districts were needed—$12,223 in 1948 and $3,493 in 1949. Seventy acres more land, across the road from the origi-

nal nursery site, were bought in 1949. The loans were made without interest and with repayment at the discretion of the nursery board. The three loans totaling nearly $29,000, plus income from the sale of trees, was enough to keep the nursery going the first 3 years. No loans were needed in 1950 and 1951, and this year the board plans to start repayments.

How rapidly the nursery has grown up is seen in the fact that during the 5-year period, the nursery board has bought new irrigation equipment, new electric motors for all pumping stations, new cultivation equipment, tractors, planters, and transplanters. Now being added are a warehouse and packing shed, more irrigation pipe, a new truck, and a transplanting machine.

As was to be expected, there was no production in 1947 and the nursery had to rely solely on loans to meet operating expenses. Production in 1948 amounted to 379,000 trees, which brought a net income of $2,443.77. The second loan and this income kept things going. The 1949 production was 1,362,725 trees, which produced $20,367.78 in net income. This, and the third and smallest loan, pushed the nursery over the hump. Production in 1950 was 1,300,270 trees and the net income, $27,850.07—no loan needed. In 1951, a total of 3,335,525 trees was produced, bringing a net income of $33,810.51.

Now the nursery is on a schedule of between 2 and 3 million trees annually, of which 35 percent are shrubs, 50 percent deciduous trees, and 15 percent conifers. Species include buffaloberry, caragana, chokecherry, honeysuckle, lilac, plum, sandcherry, boxelder, Russian-olive, green ash, cottonwood, American and Chinese elm, hackberry, silver maple, white and golden willow, pine, spruce, and cedar.

The Oakes nursery now stands squarely on its own feet. Its production schedule is enough to close the gap that has existed between the demand for tree-planting materials and the supplies of adapted stock of the required quality that are available from commercial nurseries and other sources. It has reached the stage where it shows a margin over operating costs and can begin to repay the loans. Its net worth is now nearly $100,000. Members of the present board of managers are Glen Swanson of Fairmount, chairman; Otis Tossett of Lansford; Clarence Burns of Oriska; W. B. Taylor of Bowman; Arden Bring of Galesburg; Henry Steinberger of Donnybrook; Zane Zieman of Oakes, secretary-treasurer; and three ex officio members: L. G. Lloyd of Bismarck, E. L. Worthington of Mandan, and A. B. Linford of Wahpeton.

Success of the State Association of Soil Conservation Districts, and the individual districts within the association, shows what can be done through determined cooperative effort aroused by a strong desire to see conservation on the land. They stepped in to fill a serious breach between demand and supply. Their nursery and the thousands of acres of tree plantings for soil, moisture, and human conservation, for farmstead and field windbreaks and wildlife areas springing up all over the State are memorials to the foresight and resourcefulness of North Dakota's supervisors, working together through the districts' own association.

The "Old Pond Builder."

"SKEETER" RETIRES.—Schuyler County, N. Y., livestock will not go thirsty, even in a 3-month drought. Howard "Skeeter" Meeks, bulldozing pond builder for the Schuyler County Soil Conservation District, has helped farmers with 90 of the 109 farm ponds built there in recent years. They hold nearly 30 million gallons. "Skeeter," also known as the "Old Pond Builder," has just left his bulldozing job to become highway superintendent. Because of Meeks' reputation as a pond builder, John Lamb, who heads SCS research division in Region 1, waited several months until Schuyler County Soil Conservation District could spare him to build a series of six ponds on Cornell University lands in Arnot Forest.

One of the watershed's dams with flood-detention storage space. The watershed is all in grass. Notwithstanding the fact that two 5-inch rains came on successive nights, it disposed of all the runoff through the drop-inlet pipe. Thus, the water was released at an orderly rate.

23 FARMERS DEFEAT FLOODS

By A. E. McCLYMONDS

THE rains that fell in Kansas in 1951 saturated the land and caused one of this country's most disastrous floods.

But the 2,500-acre watershed of the Schippel drain is almost wholly protected by conservation as a result of the cooperation of 15 bottom-land farmers and 8 upland farmers. Here, the damage was nil.

Notwithstanding the heavy rainfall, the waters stayed within the banks of the drain until they reached the overflow from the Saline River. The only part of the watershed that was damaged was that which was covered by the floodwaters themselves.

The watershed is rolling upland sandy soil. About 40 percent is cultivated. Flash floods used to strike at the rich bottom land, damage crops, and leave a deposit.

The ditch was built in 1932. It was not an adequate solution by itself, because it soon filled with silt. The county commissioners agreed to clean it only on condition that the farmers do what was necessary to prevent its filling up again.

In 1949 the cooperation got under full steam, using the facilities of the Saline County Soil Conservation District. Jay H. Payne, of SCS, made a survey and drew up a full-bodied conservation program which included a group of detention dams to hold back floodwaters temporarily and release them through drop-inlet pipes.

The cost of the program was estimated at $10,000, or $4 per acre. To raise half of this amount, farmers on the upland pooled their PMA allotments; the bottom-land farmers raised the rest of the money. The Salina Chamber of Commerce sponsored a Soil Saving Day, which was a public demonstration on one farm of the application of watershed conservation.

By the close of 1950 the watershed plan was almost wholly in effect. The year 1951 began dry. But in May and June the rainfall totaled as much as usually comes in an entire year. Then came the fateful week of July 6 to 12, when water fell in torrents and put the crest on the Kansas floods.

"We got a little over 10 inches of rain in 2 nights," reported D. R. Hagadorn, who operates an upland farm owned by his son, L. T. Hagadorn. "Five inches fell the first night, a little more than that the second night."

Following the first rain, examination of the watershed and interviews with farmers showed, however, that no water flowed through the emergency spillways of the detention dams. All of the floodwater was released through the drop inlets.

Looking downstream from the same bridge. Note break in edge of ditch, and deposits of silt. The ridge extending back from the break is an emergency dike. A 2½-inch rain fell shortly after the flood, but the water was so well controlled in the watershed that the ditch was able to meet the stress.

Note.—The author is regional director, Soil Conservation Service, Lincoln, Nebr.

Looking upstream from a bridge just above the river's flood line. This little stream kept in its banks until it reached the river. Where the river flooded it, of course, there was considerable damage.

Following the second rain, there was some spillway flow for a short time at all dams except one. The latter had an all-grass drainage. Farmers pointed out that the dams are designed to discharge the floodwater in 24 hours, but that the second heavy rain followed the first by less than that interval.

Some erosion between terraces was noted, especially on fields where the conservation was more recently applied. In one field only the two upper terraces had been built. The upper part was well protected. The lower part was severely gullied; the effect of this was seen in the silt deposit at the upper end of the pond into which the field drains.

There was little evidence of silting in the other ponds, and the Schippel ditch gave further evidence that the soil was being held on the watershed. The ditch appeared almost clean all the way to the Saline River flood line. Damage to the drain where the Saline had flooded it was extensive, of course.

When a 2½-inch rain fell shortly after the floods, the runoff was so well controlled that the drain handled it readily, even though the damaged part of the drain was still unrepaired.

So, this little stream was kept in bounds. Proper conservation treatment of the watershed, plus flood-retention reservoirs designed for flood control, did a most convincing job. And there is still another side to the story.

Hagadorn said, "You bet this pays. When Lester bought this place, people thought he was foolish. It was run-down and eroded badly. Now the erosion is controlled; we are saving a lot of the water we get, and we are building up the soil. The farm is producing well. Conservation has paid us and has helped the fellows down below."

Frank Bell, one of the bottom-land farmers, comments, "I feel I've gotten my money's worth already. This is the first time I've raised a crop in the low areas for several years. Before the detention dams and other soil conservation measures were put on the watershed, a half-inch rain after the hills were soaked would run water down on our bottom-land fields."

Clair Bell, bottom-land farmer, states, "Every farmer I have talked to in the watershed area, either on the upland or the bottom land, says he has been benefited definitely by the conservation project. Practically all of them feel that they have gotten their money back already. The only trouble is that this work should have been done 20 years ago. I am convinced that the best place to start a flood-control program is on the small watersheds through the use of detention dams, terraces, rotating crops, grass seeding, and other soil conservation practices."

AWARD THROUGH STRIP CROPPING.—When early summer rains came tearing down, and the runoff swept through his sidehill potato field, T. C. Perley, Enfield, N. H., truck-crop and dairy farmer, usually lost a strip of potatoes 12 feet wide across the entire field. It would take two men all day to reset the potatoes. He thought strip cropping would help, but he feared this practice would create operating difficulties that would offset the benefits. In 1950 he took a chance, and Donald G. Burbank, SCS technician, helped him make a complete conservation plan for his farm.

In 1951 he planted 7½ acres of potatoes in strips, alternating with grass. Although very heavy rains came early, he lost only a dozen hills. The 532-bushels-per-acre crop last fall—best he ever had—won the Grafton County championship in the 300 Bushel Club competition. Perley was surprised when no operating problems developed.

Perley is getting other benefits from his plan. He is following truck crops with winter rye. He planted 2,600 pounds and his cows gave more milk on rye than they did on any other crop. In addition, the rye crop protected his land during the winter and gave him a lot of good green manure. Under his plan he is using 700 pounds of a complete fertilizer at seeding. As a result, in 1951 he doubled his oat yield and got a better stand of grass. He is also installing riprapping, fencing-out stream banks, and doing drainage and land-clearing work.

DISTRICT PROFILE

GEORGE JEFFERY of SOUTH DAKOTA

Only a few years ago one of the most worthless places in Spearfish Valley was a portion of the farm now owned by George Jeffery. Two operators tried to make a go of it and failed.

What a contrast today! At the gate is a metal sign, announcing that George Jeffery and Son are cooperators with the Lawrence (S. Dak.) Soil Conservation District. It puts a meaningful label on a unit that is well-equipped, well-developed, and prosperous in its entirety. Yards, shops, and other buildings are neat and well-maintained, and the farm land is a treat to the eyes.

Jeffery came to this area in 1907. He has seen good years, and bad. He has had ups and downs, but the downs were never enough to stop his steady climb in position and reputation. Today, in partnership with his son Albert, he has made his farm a glowing example of what can be accomplished by careful planning and the conservation of soil and water.

The Jeffery farm consists of 240 acres, most of which are irrigated. The crops are varied and include barley, oats, wheat, potatoes, corn, alfalfa, and of course good grass. The permanent pastures are mainly of bromegrass and legumes. But, first, a few more words about this man Jeffery himself.

YOUNGSTERS COMPETE.—Thirty $300 college scholarships are offered to boys and girls as awards for top-rating achievement records in four National 4-H programs being conducted by 47 States this year.

The programs, number of scholarship awards in each, and donors are: Field Crops and Frozen Foods, 6 each, International Harvester; Poultry, 10, Dearborn Motors; and Soil and Water Conservation, 8, Firestone.

State winners in Field Crops and Poultry each will receive an all-expense trip to the National 4-H Club Congress in Chicago next November. Each State champion in Frozen Foods and Soil and Water Conservation will be presented a 17-jewel wrist watch; 8 sectional winners in the former program and 16 in the latter will be given a trip to the Chicago Club Congress. County winners will get medals.

George Jeffery.

George Jeffery has been interested in good sound soil and water conservation for as long as he can remember, and for as long as his neighbors can remember too. In 1940 when the Lawrence-Butte Soil Conservation District was organized he became a supervisor. When the district was divided according to the two counties involved he was retained as a supervisor on the Lawrence Soil Conservation District board and is today treasurer. He has missed only one board meeting in 12 years, and that was because it fell on July 5 and he was so busy attending the Belle Fourche Round-up that he forgot it entirely. George is a tireless worker, never too busy to attend meetings or respond to the doing of a job. He has been an active leader in local, community, and county affairs. The common attitude is: "Let's go see Jeffery about this and see what he thinks we ought to do." When George gets behind something it is bound to be a success, because he stays with it until the end. He has been active on school boards, irrigation district boards, crop improvement, war bond, and Red Cross drives, and many other public-service activities.

He prides himself on the appearance and products of his farm. In his own words, the conservation farm plan he has developed and followed with the district "has been the greatest thing ever to happen to me." He has leveled many acres of land, has constructed flumes and siphons, and relocated or elevated many of his ditches. Jeffery feels that there still is much room for improvement of irrigation practices in the district. Considerable land needs leveling,

to get efficient use of irrigation water, and gates and structures are needed to control the flow of water. George's structures are clean and efficient, and the end product marks the correctness of his manner of farming.

Jeffery habitually looks ahead to new and improved methods of irrigation and management, to new crop varieties and ways of handling his products, and to bettering his buildings and farmstead. At present he is trying new fertilizers, new types of structures, new crop varieties and mixtures, including "creeping alfalfa." His farmstead is a model. It features a well-planned windbreak, a protected garden, a beautiful lawn and flower garden, and a modern potato-storage cellar.

Jeffery is always selling conservation to his friends. He feels that the district movement has taught everyone to be more mindful of the value of topsoil, which must be taken care of if farmers are to prosper. In Lawrence County "Jeffery" and "Conservation" are synonymous.

—RUSSELL KASSON

PUPILS TEACH THEMSELVES

By ED REBMAN and WILLIAM GRIMM

PUPILS of the fifth grade at East Jordan, Mich., learn about soil conservation and soil erosion by seeing soil conservation and soil erosion.

Last year their teacher, Sadie Murphy Liskum, supervised the building of two model farms on a sand table—one with conservation measures, the other without. Stones were placed around the edges of the sand table to form the bedrock of hills. A mixture of mortar, sand, and water was poured over the rocks to simulate subsoil. The children brought in boxes of sand, clay, muck, and loam. Farms were laid out on opposite ends of the table to represent two "forties". They were made as nearly alike as possible; each had a creek flowing into a swamp, a line fence bisected a sand hill, and across the swamp from the sand hill were rolling hills.

There the similarity ends. The names the children chose—Gloomy Gully and Happy Valley—were suggestive of what they expected to see in their project.

Gloomy Gully was laid out in square fields. The wood lot was neglected and the trees were crowded. The sand hill, regarded as useless, was left bare and subject to erosion. The swamp was thick with cedars and there was no grass for pasture. The wild pasture on the hillsides was scant, and the soil eroded with every rain. "Rain" was provided with a sprinkling can. Equal amounts of water were sprayed over each farm. About 3 quarts a week were needed to keep the growing plants supplied. The creek banks were unprotected, and washed with every rain. Because the "owner" utilized a gully as a lane for his cattle, it became wider and deeper until it finally began to encroach upon his fields. The corner of his barnyard washed down into the swamp, and there appeared to be danger of the barn's being undermined. On one field the erosion was so complete that a large area of bedrock was uncovered. The sand hill, a perfect example of gullying in miniature, was washed down into the swamp, covering the fertile soil there.

On Happy Valley the children put into practice many of the things they had read about. The sand hill was planted to pines. Of course, just sticking twigs into the sand to represent a pine planting would hold no soil, so one youngster collected shavings from all of the pencil sharpeners in the building. These, mixed with the sand, acted as a mulch of pine needles. There was still slight erosion, especially on the fire lane which they raked free of the shavings.

The wood lot on Happy Valley was thinned, showing wise management. The trees were stronger and bigger. The lot was fenced so the cattle could not destroy the growth. The creek banks were planted to pine and the cattle were fenced out.

The cedar swamp was cleared of all but a few clumps to provide shade for the cattle. Reed canarygrass was planted and provided a lush growth.

Note.—The authors are county agricultural agent, Charlevoix, Mich.; and farm planner, Boyne City, Mich., respectively.

The steepest of the hillsides on both sides of the swamp were left in permanent pasture. An area between the sand hill and the wood lot was used for legume pasture; half of it was seeded and the cattle were kept out temporarily.

The large sloping area was laid out on the contour, and oats were planted between strips of alfalfa-brome hay. The corner of the farm, where strips were too short for convenient tilling, was used for a wildlife planting of Scotch pine and multiflora rose.

To simulate sod, green sponge rubber was used. Cut in strips, it served very well to hold the water. Pieces were fitted together for pastures to cover the hillsides. To indicate scant pasture on Gloomy Gully, the rubber was snipped in tiny pieces and scattered thinly over the hillsides.

The appearance of the two homesteads was quite different. On Gloomy Gully the soil was bare, the house small, and neither the house nor barn had been painted. There were no plantings for beauty, and the entire farm looked desolate. On Happy Valley the buildings were painted, pine plantings served as a windbreak on the north and west, a hedge of shrubs separated the house and barn, and there was a flower garden.

Although the project was interesting, it would have been of little value unless definite learning resulted. English compositions were centered around conservation ideas. The English work on conservation was placed in the 4-H conservation notebooks for the county 4-H achievement exhibit.

While working out a conservation alphabet, the children learned to use reference books and a dictionary.

Contour strips, erosion, mulch, gully, and waterway were not mere words. They were actual experiences. Not only do the children recognize erosion, they know the causes, prevention, and the cure.

Most important of all, the children became conservation minded. For instance, when a chum from another room stopped by for one of Mrs. Liskum's children one afternoon she was greeted by her friend with what might be regarded as an unusual remark for a 10-year-old girl: "Did you see that terrible erosion on the hill back of the skating rink?"

By ALFRED M. HEDGE

NAVY BATTLES EROSION

ONE would hardly expect to find the United States Navy, chiefly concerned with defense of our shores, engaged in the battle against soil erosion. But the Navy is one of the largest landlords in the United States and, as such, has important erosion problems on its shore stations.

Shortly after World War II naval officials responsible for the construction, maintenance, and operation of shore installations decided to carry out a program of soil conservation on air fields, ammunition depots, and other naval facilities to reduce heavy maintenance costs resulting from erosion. They talked over their problem with officials of the Soil Conservation Service; they learned about some of the successful means of controlling erosion; they learned about soil conservation districts and how they are helping farmers with many problems similar to those on Navy lands.

In 1948 a Division of Erosion Control was set up in the Bureau of Yards and Docks. W. D. (Bud) Ellison, formerly SCS researcher, has become the chief civilian consultant on erosion control.

The Bureau of Yards and Docks recognized that the control of erosion is not much different whether on naval stations or privately owned land. They also recognized that much of the erosion damage on established stations could have been avoided if the problem had been dealt with in the lay-out and design of the station.

Arrangements have been made for the Soil Conservation Service to make detailed conservation surveys on a large number of naval stations. As the surveys are finished, local SCS technicians provide recommendations regarding proper land use and treatment for each kind of

Note.—The author is chief of project plans division, Soil Conservation Service, Washington, D. C.

land. These recommendations include probable rates of runoff, allowable velocity of flow, and other pertinent information on the design of ditches and waterways; proper angles of slope; information on soils which enables the engineer to select the best materials for each job; guides for drainage work, seeding, and fertilizing; and other pertinent facts. With this information as a guide, the Bureau of Yards and Docks in Washington has prepared a conservation report for each station surveyed by SCS. A number of SCS technicians from the Washington and regional offices have helped with this job. This report is used by design engineers who prepare construction plans and specifications. It is also a guide to the contractors building the stations and to inspectors who check the contractors' work.

The Bureau of Yards and Docks recognizes the need to consult from time to time with local SCS technicians. Naval district officers talk over their conservation problems with the governing bodies of any soil conservation districts that include Navy land within their boundaries. They have entered into cooperative agreements with districts. These agreements put the Navy land in the same relationship to a soil conservation district as any private land. After the execution of such a cooperative agreement, SCS technicians, with the approval of the district governing body, act on the request of the Navy just as they do in response to a request from any other district cooperator who needs technical guidance in the application of his plan. Where naval stations are not within organized soil conservation districts, technical consultation is arranged for by the naval district officer and the appropriate regional office of SCS.

Naval district officers appreciate the technical help they are able to get through soil conservation districts. Recently one district officer who has several stations under his command inquired what steps he could take to help interest the local people in including some Navy land within a nearby soil conservation district.

Cooperation between the Navy and soil conservation districts is not limited to technical consultation. Many of the Navy's problems involving public relationships are being solved by talks between district supervisors and Navy officers in the field. In this way the Navy believes the public can be brought to a better understanding of Navy's objectives and ways of doing business, and this friendly cooperation enables the Navy to make minor adjustments in their plans so that many public-relation problems are avoided.

Plans have recently been made to employ a full-time conservationist on the staff of naval districts. In addition, at some of the larger individual projects, where erosion-control work is of considerable magnitude, the plans call for full-time employment of a conservationist.

Now we come to an appraisal of the work which soil conservation districts and the Soil Conservation Service are helping the Navy carry out. Here is a quotation from a letter written by G. M. Gans, Commander (CEC) USN, officer in charge of construction, to one of our State conservationists:

"In completing these investigations with the generous assistance of you and your engineers, we have been able to provide the construction bidders with valuable soil information. This tends to eliminate a contingency item in their bids, and permits economical exploitation of the depot's natural resources. Finally, it results in more favorable construction costs and considerable savings to the Government."

Rear Adm. J. F. Jelley, chief of the Bureau of Yards and Docks, has taken a personal interest in the erosion problems on Navy land. At the very beginning of this cooperative work he presided at several meetings between Navy personnel and SCS technicians in Washington, where the principles of erosion control were discussed. Recently Admiral Jelley said, in speaking of cooperative arrangements with soil conservation districts: "Under the terms of these agreements, Navy officials may call on local soil conservation authorities for guidance on these aspects of their problems which have special local application. It is expected that the advantages to be gained under the terms of these agreements will provide naval shore establishments with the best possible conservation programs for protecting engineering works against soil erosion and flood hazards, for the conservation of soil and timber resources on Navy land and for the protection of streams against pollution by silt-laden waters during heavy rainstorms."

Wyly at tractor controls.

CONSERVATION SAVES LOUISIANA FARM

By DON L. RICHARDSON

EARLY in 1949, J. G. Wyly, Jr., bought a 668-acre Mississippi River bottom farm near Tallulah, La. That year he lost $14,000 on the place. The next year, however, he grossed $14,210, and by 1951 the figure had climbed to $38,324.

Wyly has worked hard to make the farm pay. Despite his first discouraging years, he kept on with expensive, but needed, drainage work. He continued to build up the structure and composition of his cropland with soil-improving crops. He stuck to his pasture-improvement plan. Land-capability mapping guided him in developing pastures. He row-cropped only those parts of the farm that could be safely and profitably cultivated.

When Wyly bought the farm, it had been cropped to corn and cotton for generations. The land was water soaked. The soil was poor; it was hard and caked, and was lacking organic matter. Preparing the land for planting was a tough job.

The year before Wyly bought the farm, a tenant was unable to pay the rent.

The only pasture on the place was a little fenced area of low-quality native grasses.

"I signed an agreement with the East Carroll-Madison Soil Conservation District to put the farm under a conservation program," Wyly recalls. "My first job was to get the place drained. They had tried draining it in the past, and ditches ran all over the place without rhyme or reason. Those ditches only made matters worse and I've had a job filling them in.

"Soil Conservation Service engineers worked out a complete conservation plan and drainage system for me, and that first year I put in 1½ miles of ditches. I used all the PMA money I could get and $1,500 of my own. So far I've put in more than 10 miles of ditches and I'm not through yet. I've used a dragline owned by the soil conservation district for all my ditch digging.

"The ditches empty into public works canals, which serve as an outlet for many farms; but a lot of farmers are not taking advantage of them."

Tied closely with his drainage work was the job of filling old drains, rearranging field boundaries and rows, and extensive land leveling to get the greatest use out of mechanized equipment.

The drainage work wasn't done in time to do Wyly's crops much good in 1949. At the end of the season he could count only 106 bales of cotton from 300 acres, and only 10 to 15 bushels of corn per acre from 100 acres.

In the fall of 1949 Wyly began his pasture-development program. He planted 200 acres to Singletary peas, 60 acres to tall fescue. He got good stands. He planted hairy vetch and Singletary peas to improve 50 acres of cotton land.

In 1950 Wyly turned the 50 acres of vetch and peas into the soil. "The tide began to turn," Wyly says. "Where the vetch and peas were, I made a bale of cotton per acre, and over 50 bushels of corn per acre."

In 1950 Wyly seeded White Dutch clover on some pasture land. He fertilized his fescue grass with 100 pounds of 16 percent soda nitrate an acre. "You could fairly see the grass shoot up," he says.

In 1951 Wyly finished the drainage work on his cotton land.

Note.—The author is area conservationist, Soil Conservation Service, Tallulah, La.

Sheep on Wyly farm get early April grazing in pecan orchard. Pasture is composed of hairy vetch, Singletary peas, bur and White Dutch clover.

"I had 150 acres in cotton in 1951 and harvested 214 bales of 500 pounds each," Wyly quotes from his records.

Meantime Wyly had harvested seed crops from his Singletary peas, tall fescue, and red clover to use on his own place.

Extending his use of soil-improving plants on his cropland, Wyly turned 135 acres of vetch and peas into the soil in March 1952. He has been increasing his acreage in oats while cutting down corn acreage.

Wyly turns crop residues into the soil. This practice, together with soil-improving crops, adds organic matter, makes and keeps the land soft and spongy. He uses tillage practices that do not develop plow pan, a hard layer of soil that blocks the downward movement of water and plant roots. In 1951 Wyly subtilled his cropland, and will repeat this operation every other year.

When Wyly had his pastures well along, he began stocking up with cattle, and later with sheep. By the spring of 1952 he was running 110 head of beef cattle and had 81 grown sheep and 60 lambs.

Wyly's permanent pastures are composed of Dallisgrass and tall fescue, Singletary peas and white and bur clovers. He has year-around grazing. He buys no feed for his livestock. His stock graze oats and vetch from the first of the year until about April 1. Then they are turned into the permanent pasture for the rest of the year.

Wyly believes in insect control. He sprayed and dusted his 1951 cotton crop 19 times.

Wyly learned the value of soil conservation when he was a supervisor of the East Carroll-Madison Soil Conservation District, a post he gave up when he moved from the zone he represented to take over his present farm.

Swafford and sons operate sawmill.

MANAGED WOODLAND— MORE TIMBER

By LESTER FOX

H. C. SWAFFORD loves the woods and regards his ownership of woodlands as a public trust.

A native of Tennessee, he came to Stone County, Ark., around 1920 and homesteaded a quarter section. He had only a mule, a double-bit ax, 5 bushels of corn, and 35 cents.

The quarter section was covered with trees, mostly hardwoods of no commercial value. Young Swafford cut enough pines to build a log cabin for his wife and baby. He went to work in the forest for a lumber company and began to develop a reverence for the woods.

Today Swafford owns 4,000 acres in Stone County southeast of Mountain View. All of it is in woodland except 250 acres of improved pastures for his 50 head of beef cattle. Timber is his main crop and principal source of income, something rare among northern Arkansas farmers, though the area is thickly wooded. His five sons have an additional 1,500 acres of woodland. They work with their dad in operating the 5,500 acres as a unit.

Swafford has his own sawmill and cuts 100,000 board feet a year. He will increase his cut as his pine stand improves. He operates with three tractors, two trucks, a power hand saw, and other mechanical equipment. Economical production is his aim. He can figure quickly in his head whether he can make more by sawing a border-line tree into boards or selling it as a pole.

Swafford has always handled his woodlands with a instinctive understanding of conserva-

Note.—The author is with the division of information, Soil Conservation Service, Fort Worth, Tex.

tion principles. He has protected his forest against fire and encouraged the growth and spread of commercially valuable pine trees by keeping grazing animals out of his woodlands. He also realized that periodic thinning was a good conservation practice.

But it was not until Swafford became a cooperator with the Blue Mountain Soil Conservation District a few years ago that he acquired an understanding of the principles of managing a woodland to make it better and keep it productive permanently.

He has been given on-the-ground help by SCS foresters and other technicians. From them he has learned how to select trees for thinning and how to apply the "D plus 6" formula by which he can figure quickly how much growing space each pine tree needs. All he does is add six to the diameter of the tree and multiply that sum by itself. "If a pine tree is 4 inches in diameter, you add 6 to that and get 10," he explains. "Then you multiply 10 by 10 and get 100. That means the 4-inch tree should have 100 square feet of growing space. With this formula I can thin my woods and take out the trees on a scientific basis. There's no hit-or-miss about it."

Swafford has also learned that to improve his timber stand and give pine trees a chance to spread he has to kill the large overtopping hardwood trees by girdling.

In 1930 Swafford cut pines from 30 acres of his original homestead to get lumber for a new home. Ten years later he cut the same 30 acres and took out 60,000 board feet.

(Continued on page 89)

H. C. Swafford talks woodland management with SCS technician H. K. Sager.

WISCONSIN BANKERS LEAD COOPERATIVE DRIVE

By HOWARD C. HASS

CENTRAL Wisconsin bankers have adopted land judging and soil conservation as their major project.

In May last year 15 teams of high-school agriculture students competed in the first land-judging contest to be held in Wisconsin. Several members of the Waupaca County Bankers Association who watched the event went away highly impressed.

To encourage the youth of their community to evaluate land, the banks in each local community decided to sponsor a team in the 1952 judging contest. They gave support which made possible certificates, awards, and a recognition dinner. A representative of each bank accompanied his team to the contest held on a farm near Wautoma.

Forty-eight agriculture students, representing sixteen high schools in central Wisconsin, participated. The soil in four different fields was examined by each student, and classified according to its color, depth, texture, permeability, and the degree of erosion that had occurred. Fields were appraised according to their inherent capability, or capacity to produce farm crops. The best adapted cropping systems and soil conservation practices were prescribed.

Central Wisconsin bankers do more than encourage a better knowledge of the land. They miss no opportunity to see that soil conservation practices are adopted on the land.

One of the leaders in this movement is Joe Hartz of Manawa, for the past 6 years executive vice president and cashier of the Farmers State Bank of his city. Shortly after starting with the Manawa bank, he made a tour of soil conservation projects with one of his bank directors and Louis Eastling, a supervisor of the Waupaca County Soil Conservation District. He was so impressed with the need of encouraging soil conservation practices on area farms that he lost little time getting started, and urged other bankers to do likewise.

Note.—The author is district conservationist, Soil Conservation Service, Waupaca, Wis.

Joe Hartz talked to farmers about applying conservation practices. He held soil conservation clinics every year, making use of local and nationally known talent to place the program before landowners. He used posters in the bank lobby, advertised on a postage meter and in the Manawa *Advocate*. He boosted soil conservation in the bank's annual report and purchased SOIL CONSERVATION, official magazine of the Soil Conservation Service, for district cooperators in the bank's trade area. When farmers applied for loans, he encouraged them to establish soil-building practices. When farms were appraised for real-estate loans, he recommended that SCS facilities be used, and in some cases disapproved loans until they were.

Hartz plans to stress soil conservation in his activities as executive vice president of the First National Bank in Stevens Point, where he began new duties last July 1.

Another leader in the soil conservation movement is Kenneth P. Van Epps, executive vice president and cashier of the Farmers and Merchants Bank, Weyauwega. His bank has sponsored school essay contests on soil conservation and related farm subjects for the past 5 years. He encourages farmers to join testing associations and to keep dairy-herd records. The Farmers and Merchants Association of Weyauwega, of which he is president, is sponsoring a 10- to 20-year program of establishing wildlife plantings and shelterbelts. This spring more than 12 miles of shelterbelts were established to help control wind erosion that is damaging fields west of the city. Van Epps and other associates planted 32,000 and 45,000 trees in the springs of 1951 and 1952, respectively, on eroded land near Weyauwega that is suited only for growing timber.

Harry Rawson, president of the Farmers State Bank of Waupaca and member of the executive council of the Wisconsin Bankers Association; Roy Luther, cashier of the First National Bank, Waupaca; and Bob Barney, formerly cashier of the Marion State Bank, have also done much to promote soil conservation in their

communities. Through farm institutes, advertising, and individual contacts they have encouraged local businessmen and farmers to become soil conservation minded.

The Waupaca County Bankers Association has been instrumental in solving equipment needs for the district supervisors. Adopting soil conservation as their major project, they entertained the county board and implement dealers at an informal dinner during their 1951 spring session. District needs were discussed, and Ben Rusy, secretary of the State Soil Conservation Committee, described how soil conservation affects an entire community. At their afternoon session the county board voted unanimously to purchase a motor-patrol grader for soil conservation work. This helped immeasurably but did not fulfill all of the needs.

In 1952 the bankers again entertained the county board and presented their problems. Here, O. K. Johnson, president of the Wisconsin Bankers Association, further encouraged their cooperation and support. Following this gathering, the county board provided an additional two graders for soil conservation projects, which should adequately serve the immediate needs of the district for such equipment.

This sort of cooperation between bankers, farmers, agricultural teachers, students, district supervisors, and SCS personnel is bringing results to central Wisconsin in education and conservation on the land.

MORE TIMBER

(Continued from page 87)

"I didn't cut close," Swafford says. "I could go back in that same 30 acres now and cut out 25,000 feet and leave 75,000 feet. That's a lot more than I had there 10 years earlier, when I had to take every pine 4 inches in diameter or bigger over the whole 30 acres to get enough lumber for the house—less than 2,000 feet. And about the only pines in the whole quarter section originally were in those 30 acres. That's proof of how you can increase pine growth with a little care and management. I estimate I'm growing 200 board feet per acre per year on that 30 acres, and production will increase to 300 feet. Our whole 5,500 acres are improving in the same way, though it's not all producing at the rate of the 30 acres yet."

As part of his conservation plan, Swafford has divided his woodland into seven tracts of about equal size and plans to cut each tract every 7 years. His schedule has been hindered for the time, however, by ice which did an estimated $10,000 damage to his pine trees in the winter of 1951-52. The ice bent and broke hundreds of trees. Swafford has been busy removing the damaged pines as salvage.

For the last 20 years Swafford has been putting all his spare cash into the purchase of additional woodlands. He is still in the market, and is interested in a 40-acre tract that might appear worthless to most persons.

"Many farmers cut pines when they are too small and burn the woods over every year," Swafford says. "They think burning kills the ticks and improves the grazing, but all it does is raise a big smoke."

Swafford's pines have increased tremendously with the good care he has given them. Without boasting he tells you: "I have more pine timber on my land than there is between here and Heber Springs."

That is 27 miles.

OUTLINE FOR TEACHING

(Continued from page 74)

Each chapter is divided into three sections. First, there is a brief statement indicating the relationships between the subject and the field of conservation; then there is a brief outline of objectives; and, finally, there are suggested activities and topics for study and discussion.

The pamphlet should be helpful to supervisors, administrators, and curriculum directors who need an over-all point of view and a brief guide to the problem of conservation, especially as applied to the soil. The bulletin will also be useful to teachers in planning units of work, projects; and trips.

As the authors make clear, it is not the purpose of this bulletin to offer a definitive treatment of the problems of conservation of natural resources. Other publications will need to supplement this very brief treatment of the topic. Moreover, each teacher will need to make adaptations to fit local needs. Used in this way, the outline should do much to help our young people avoid the mistakes their elders made in their use of America's natural resources.

THE CITIZEN'S PART IN CONSERVATION

By JOHN H. BAKER

AMERICANS are tremendously interested in conservation. State legislators have said that they receive more mail about conservation legislation than about all other subjects combined. Laws have been put on the statute books as a result of citizen participation in conservation planning. The result is a more advanced body of conservation legislation in America than anywhere else in the world.

The greatest progress made in conservation in our generation has been growing recognition of its basic relation to human welfare—the broadening of horizons and the scope of operations and goals of the organizations working in the conservation vineyard. No longer, as a rule, can we afford to compartmentalize our thinking or action. We cannot expect thus to win, as a people, in the battle of life on this planet. No longer can we attain our ends by organizing for special purposes that represent a preferential interest conflicting with other preferential interests in the same general field.

The National Audubon Society, for example, endeavors to make people aware of the steady stream of life around them; of its beauty, richness, and complexity; and, above all, aware that they are part of this exciting pageant of events; that human life is affected in all sorts of ways by every plant that forms a seed, by every prairie dog that makes a burrow, by every dragonfly that emerges from its nymphal case; that man is, in fact, part and parcel of the biological picture, and can no more escape therefrom than from birth or death.

It is encouraging that we are getting down to fundamentals. Soil and water conservation is basic if our over-all resource picture is to improve. For too long, soil and water were orphans of the storm, and the situation is far from remedied yet. Ecology, though still dimly understood by the average layman, is slowly gaining public recognition and acceptance. The cries of "shoot the predators" and "build more game farms" are heard less often. It is finally becoming understood that game will not prosper unless it has suitable habitat, but will then prosper without any predator control other than that of man. Enlightened groups are now working to improve wildlife habitat in every possible way; they work with soil conservation districts and other agencies to prevent soil erosion and abuse, because they know that wildlife needs healthy land as much as people do.

Most persons interested in natural resource conservation participate in the programs of the thousands of voluntary organizations, on national, regional, State, county, and local levels, that have been established to advance conservation objectives. Some have goals that are diametrically opposed to those of other groups that also regard themselves as conservation agencies. This is merely a reflection of the many differences of opinion about conservation matters. The disparity in viewpoint between, let us say, the Baptist preacher who espouses fundamentalism and the Unitarian minister's "realistic" approach is no greater than is to be found in the conservation field. Despite their varying philosophies, often brought into sharp focus at legislative hearings, our conservation organizations do team up with reasonable effectiveness.

A listing of some of the national conservation organizations will give an idea of the variety of purposes they serve: American Forestry Association, Washington, D. C.; Conservation Foundation, New York City; Friends of the Land, Columbus, Ohio; Izaak Walton League of America, Chicago, Ill.; National Audubon So-

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Note.—John H. Baker, New York City, is president of the National Audubon Society, and is chairman of the Committee on Conservation advisory to the Secretary of the Interior. He has been a breeder of Aberdeen-Angus beef cattle on a farm in Dutchess County, N. Y., since 1930. He is editor of "Audubon Guide to Attracting Birds" (1941). This article is taken, by permission, from *The Annals of the American Academy of Political and Social Science*, May 1952.

ciety, New York City; National Parks Association, Washington, D. C.; National Wildlife Federation, Washington, D. C.; Wilderness Society, Washington, D. C.; Wildlife Management Institute, Washington, D. C.

There are a number of others, many with specialized interests, such as the Sierra Club, the Wild Flower Preservation Society, Ducks Unlimited, Sport Fishing Institute, and the conservation committees of the Garden Club of America, and the National Council of State Garden Clubs, Inc.

Each national conservation organization concentrates on certain major objectives, though its scope of interest and influence may cover the entire conservation front. This is as it should be. Most executives of national conservation organizations make it their business to keep in close touch with key personnel of the governmental agencies charged with conservation work. Therefore the views of the organizations are usually well known to the departments and bureaus concerned. Much the same is true of Congress. Those legislators who are particularly concerned with conservation problems are kept informed as to the thinking of the conservation groups. Congressional committees frequently hold public hearings on controversial matters, and these are well attended by organizational representatives.

Somewhat the same situation exists on State and local levels. Most governors or State conservation departments have advisory committees that keep them abreast of grass-roots opinion. It is unfortunate that some of these committees are representative of special rather than public interest in the field. In some cases they reflect solely the point of view of those whose main objective is harvesting more game now, not later.

Occasionally someone suggests that perhaps greater effectiveness could be achieved by coordinating or merging the major national conservation groups into one superorganization. This is advocated on the ground of "efficiency." With human nature operating freely in a democracy, the chances that such a plan would produce desirable results are practically nil. There would be great dissension over emphasis, both in policy and in application of funds. A single agency probably could not command the financial support that is given to the combination of present voluntary organizations. At present there is a good spirit of give-and-take among the various groups. Any two of them may be in complete disagreement one month and work hand in hand on another issue the next month.

It has been estimated that some 10 million Americans pay dues to conservation organizations. It is through membership in, and financial support of, the national conservation organizations and their local branches, chapters, or affiliates that John Q. Public has the best opportunity to further conservation. In the local groups he can have the satisfaction of personal participation in specific projects, and pride in personal accomplishment.

The individual may find himself on a committee of his local organization to survey the need of conservation in his community and its environs. If so, he is likely to sustain a series of shocks. He may discover that most of the timber products used in his area were not grown there, nor in his State, nor even in his Nation. He may find deep scars on the land and

observe that only a fraction of the farmers are using soil conservation methods. If he wonders at the paucity of wildlife, his questions will be answered by the drained marshes and barren fence rows that are symbols of modern farming. In our rush to put every acre to use in producing even greater farm surpluses, we have made it hard going for wildlife. The old wooden and stone fences supported vines and shrubs that offered abundant food and cover. The pot holes bred ducks, muskrats, and a variety of other wildlife. The modern farm may produce a few bushels more of potatoes or corn, but one can hardly believe that it is a better place to live than the farm of yesteryear.

Because State lines are, after all, artificial political boundaries, some organizations are regional in nature. With the development of what is called the "watershed approach" to conservation planning, it seems logical that regional organizations will increase. A good example is the Brandywine Valley Association.

Some years ago a group of civic-minded men and women took a long, hard look at the 330-square-mile area where they lived. They decided that the Brandywine Valley in Pennsylvania and Delaware, where reside some 200,000 people, was not receiving the sort of treatment that befits a good home. Because they had the common sense to realize that their health and prosperity depended to a considerable extent on the natural resources of their region, they formed the Brandywine Valley Association. According to their own statement, it was organized to provide a common meeting ground on which ideas and information could be exchanged and progress measured. The association's program encourages and aids the people of the Brandywine Valley to reduce soil erosion and silting, lessen flooding and drought damage, decrease stream pollution, improve and protect existing woodland, reforest marginal lands, and preserve wildlife and natural beauty.

The work of the Brandywine Valley Association is largely educational, as is that of most conservation organizations. Members of its full-time staff attend meetings and demonstrations throughout the valley and succeed in arousing interest in conservation problems that are so close at hand that few people see them.

It did not take the association long to discover that no matter how valuable improved procedures are, they have to be sold to the landowners or industries involved; so it is helping to acquaint the residents of the valley with the ways in which they can utilize the services of conservation agencies. The organization has steered clear of partisan affiliations of any kind. It has enlisted as backers many of the most influential citizens of the Brandywine Valley. Certainly no one can deny that the valley is a better place today because of active citizen participation in conservation planning.

Whenever conservationists meet at conventions, lamentations are heard on all sides about the failure of our school systems to teach conservation effectively. It is alleged that most of our problems today result from this shortcoming, and that the conservation future will not be very rosy unless remedial action is taken. Back in 1911 the National Audubon Society decided to do something about this matter. Illustrated material for children and program aids for their teachers were made available, and over 9 million American and Canadian children will have enrolled as members of Audubon Junior Clubs by April 1952. The great majority of these are alive today, and it is reasonable to deduce that their combined thinking has had, and is having, measurable beneficial effect on governmental policies and legislation.

In 1936 the society launched its summer camp program for adults, especially designed to be of practical aid to school personnel, youth leaders and camp counselors, recreation and playground personnel, conservation chairmen of societies and clubs, and others with a hobby or professional interest in nature. These camps are more than natural history schools. They are concerned with more than simply stimulating hobbies or professions. They aim to develop majority public opinion favoring intelligent treatment and wise use of our natural resources, so that there may be constructive legislative results, with popular enforcement.

The society is working on the leverage principle, imparting a knowledge of successful teaching techniques to teachers and other youth leaders, each of whom may be expected to

reach an average of 30 youngsters during the ensuing year. Some 600 persons graduate each year from the 3 camps now operating in Maine, Connecticut, and California. Picture, then, the influence to be attained by a dozen such camps geographically distributed throughout the continent, graduating annually some 3,000 youth leaders possessing opportunity to reach, each school, troop, or club year, some 90,000 young people. Bear in mind that the camps cater to new students each summer, so the effect tends to snowball rapidly.

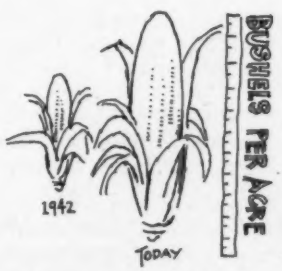
If, in a 2-week session, the society conveys to each student comprehension of the interrelationships of soil, water, plants, and animals and an awareness of their impact on human welfare; imparts to them knowledge of successful teaching and leadership techniques, not by listening, watching, or reading about them, but by trying them out in the field under guidance; develops in them a wonderful spirit and the feeling that they have never had a better time in their lives; causes them to wonder how we can give them so much for so little and send them home with new zest in life and a will to further conservation in their own communities —if these things are accomplished, we have gained our principal objectives.

Upon returning to Minneapolis from the Audubon Camp of Connecticut, several school teachers decided that direct action was advisable. With official blessing, they formed a conservation committee in the Minneapolis public schools. Teachers from different grade levels, principals, and supervisors are on the committee. They meet regularly to discuss ways of integrating conservation into the curriculum and to exchange their own experiences and ideas. It augurs well for the future.

It is not possible to cover with thoroughness in this article all the ways in which citizens, through the organizations they have formed, take part in conservation activities. Nevertheless, public opinion continues to lag many years behind the findings of science in conservation work. It has been said with some truth that our greatest problem now is not so much to conduct more research to find more facts, as to do the educational job necessary to acquaint the public with the known facts, so that the policies of governmental conservation agencies may be up to date.

Virtually every conservation organization is carrying on work that is made possible by the interest and support of individual citizens banded together to accomplish certain purposes. Only a handful of these groups are endowed, and those inadequately. The others are operating on shoestrings. The few organizations in the conservation field that are sometimes inaccurately described as "wealthy" have tiny endowments when compared with even small-sized colleges or museums. The largest present endowment of a conservation organization is less than 3 million dollars.

Despite the limitations under which conservation organizations work, a tremendous amount of progress has been made. Conservation has evolved from a philosophy propounded by people who were regarded as cranks into an accepted doctrine that now finds wide public support. No realist can afford to do much boasting about what has been accomplished, because so much remains to be done. We can all rejoice, however, in the fact that large numbers of citizens are now participating in conservation work. We shall doubtless see the day when conservation will be the way of life in America.



TRIPLED CORN YIELD.—On a 25-acre field which produced 35 to 40 bushels of corn per acre less than 10 years ago, H. George Thompson, of Great Mills, Md., got more than 100 bushels per acre last year. His small-grain yields have gone up similarly. Thompson attributes most of the increased production to sound conservation practices established in cooperation with the St. Marys Soil Conservation District. Gullies, so old and deep that big trees had grown in them, are healed and under cover. None of his topsoil is running into the St. Marys River any more. Diversion and strips have ended his erosion problem.

FFA OPERATES FARM

By JOHN G. WILSON

THANKS to the friendly interest of a Newton, Iowa, automobile dealer, the Newton FFA class is now taking an active part in the planning and operation of an 86-acre farm. The dealer, T. H. Ragsdale, believes in soil conservation—and boys. The lease worked out between Ragsdale and the FFA chapter is on a 50-50 crop share basis with other provisions covering all operations and expenditures.

This is not the chapter's first venture in conservation farming. The Newton FFA class is a pioneer in this activity. It operated a 40-acre tract for several years and in 1950 took over an additional 20 acres. Ragsdale stepped in when these tracts were no longer available. The hard-working FFA class had already won a year's use of a tractor with plow, blade, and scoop in a State contest sponsored by a Des Moines implement company. Through the cash returns from their farm operations and a donation from the Newton Chamber of Commerce, the chapter bought the tractor and equipment and also have added a disk, planter, fertilizer spreader, and sprayer. A rotary hoe was donated by a local manufacturing company, and other equipment has been loaned by Newton implement dealers.

A complete conservation plan for the Ragsdale farm has been developed between the owner, the chapter, and the Jasper County Soil Conservation District. The plan was developed after the class spent several periods walking over the farm and studying the capability map made up by the Soil Conservation Service. As farm planner, the writer discussed various phases of the program with the group, and since then has aided by demonstrating how to run contour lines and carry out other practices in applying the plan.

The land-use map shows about 20 acres of cropland, 10 acres of permanent hay, and the remainder in pasture, with the exception of a 2-acre wildlife area, which consists of a pond surrounded by grass and wildlife plantings.

The cropland, being Class II land according to capabilities, has been set up with a 4-year rotation of corn, corn, oats, and meadow, and supported by necessary conservation practices—grassed waterways and contouring. All the cropland is in corn this year; the 5-year-old stand of alfalfa has been completely killed out. A terrace will be placed at the lower edge of the fields to protect the area below from excessive runoff. Later a multiflora-rose fence will be planted between cropland, pasture, and hay land. This will provide cover for wildlife. Soil samples for the entire farm have been taken and sent to the State College at Ames for tests. Lime and fertilizer will be applied according to recommendations.

A definite program of improvement has been worked out for the pasture area. First it was necessary to fill several deep gullies that had cut the field into small patches. This was done by a large bulldozer employed by the owner. The final shaping and seeding was done by the chapter. Approximately 10 acres of the pasture is being broken on the contour this year and will be planted to corn. Next year this plot will be seeded back for improved high-protein roughage and another 10 acres broken out and handled the same way. This will be continued until the entire acreage is improved. About half the pasture will be seeded with birdsfoot trefoil and orchardgrass and the rest to an alfalfa-bromegrass mixture.

The permanent hay land has also been seeded to alfalfa-bromegrass and will be reseeded as the stand deteriorates.

Another management problem is noxious weed control. A large patch of Canadian thistles will be sprayed with 2-4-D and then smothered by a heavy stand of permanent hay in an attempt to control it.

A deep gully head encroaching on the farm from the southwest presented another problem. To control this gully a tube and riser type mechanical control structure is being considered. If built, it is so designed as to create a lake of about 3 acres. This would then be developed as a recreational area.

Besides all the experiences gained by working

Note.—The author is farm planner, Soil Conservation Service, Newton, Iowa.

with the above-mentioned problems, the FFA class gets the experience of operating and adjusting equipment; mixing, treating, and inoculating seed; mixing sprays; making choice of seed varieties; methods and time to till land; harvesting and selling crops; all these, plus the responsibility of getting the job done by working together as a team. There is the further angle of landlord-tenant relationship that will furnish priceless experience for the boys when they become farm operators themselves.

With nearly 30 acres of corn and 10 acres of oats for crops this year, the boys will be kept busy. And, with a good crop, they should net a fair return in cash.

Dale Purcell, their instructor; and Emeron Dettman, his assistant, are proud of their students' enthusiasm and determination. The instructors themselves have also worked on the project and both say it is worth all their efforts.

Ragsdale, too, is anxious to make the project a success. And from a certain glow on his face when the boys affectionately call him "Rags," I am sure that he will.

MULCH SPED GROWTH.—When they set out a new orchard 2 years ago, C. E. Gowan & Son, in the Rockingham County (N. H.) Soil Conservation District, mulched one-half of it and cropped the other half. Growth of the mulched trees now exceeds growth of those in the cropped area by at least 50 percent.

CONSERVATION IN COLOR.—Because of the enthusiasm of an SCS conservation aid and a county PMA supervisor, the people of Elk County in southeastern Kansas have their own colored motion picture, telling the story of soil and water conservation—needs and accomplishments—in their own area.

The film takes 24 minutes to show and was very popular from the start. Although completed only late last year, it has been shown to hundreds at meetings in Elk County. It has also been shown in nearby counties, and there are many requests for other showings.

This picture is the product of George G. Gorman of the Soil Conservation Service staff at the Elk County Soil Conservation District, and Kenneth Parker of PMA. The men are stationed at Howard, are close companions, work together a great deal, and engage jointly in other activities. Their latest is joint ownership of an airplane.

They conceived the motion picture and made an outline. Then, during a 3-month period, they took the

George Gorman of SCS and Kenneth Parker of PMA with their airplane.

various scenes. This was done on their own time—Saturdays and Sundays—except for a total of 8 hours of working time. Scenes were "shot" in various sections of the county as the men saw the opportunities. Later, Gorman and Parker cut, edited, and reassembled the film in the sequence as originally planned. They bought titles for the beginning and end in order to dress up the picture.

The opening scene shows a plane taking off and the last shows it landing. A third of the pictures were taken from the air.

Here are the scenes shown: Erosion and poor terrace outlets as seen from the air and the ground; both native- and tame-grass waterways, with close-ups of the kinds of grasses; aerial views of all terraced and contoured farms, with ground views showing dimensions of a properly built terrace and scenes of terrace building; aerial views of four ponds, with ground scenes showing properly riprapped dams and fenced spillways, showing comparison of conditions within fenced spillway areas and outside and showing how a cut spillway is adaptable to certain sites, and heavy equipment building a dam; and scenes at the SCS nursery at Manhattan, Kans., showing tame and native grasses.

First showing of the picture was at the annual meeting of the soil conservation district, with 255 present. Gorman addressed the group, stressing the importance of a complete conservation plan established on the basis of land capabilities and needs of the land.

Gorman and Parker spent about $70 making this picture. Of this, $40 was for plane rental and $30 for film, reels, and supplies. The use of their own plane, which they bought before they concluded the picture, is not included. They had no thought of repayment, but after the first showing the soil conservation district repaid Gorman and the PMA repaid Parker.

With this project out of the way, it will be interesting to watch what Gorman and Parker will start next. Soil conservation is their paramount interest. It has been said that a real soil and water conservationist is also something of a missionary. These men qualify.

—Roy M. Davis.

HIGH LIGHTS of FISCAL 1952

By R. W. ROGERS

FISCAL year 1952 set an all-time record of Soil Conservation Service accomplishment in districts when 2,404 districts were assisted, 88 more than the previous year; over 37 million acres were surveyed, an increase of nearly 7 percent; 86,300 basic conservation plans were prepared for nearly 23 million acres, a decrease of 37 percent; and 165,800 plans were started in the initial and advanced stages. This was the first full year of progressive planning procedures and more farmers and ranchers became cooperators than ever before in 1 year.

As of June 30, 1952, there were about 1,120,000 active district cooperators whose land comprised over 322 million acres, or more than a fourth of the agricultural land in the United States. Over 410 million acres had been surveyed in sufficient detail for farm and ranch planning. In many areas the initial planning stages are moving ahead rapidly before surveys are available.

Application of soil and water conservation practices during the year on farms and ranches of district cooperators increased about 7 percent over the previous year, even though slightly less technical assistance was available. There were increases in cover cropping, 17.3 percent; seeding range and pasture, 26.6 percent; pond construction, 62.7 percent; farm drainage, 12.0 percent; and irrigation land preparation, plus 6.0 percent. Other practices showed slight decreases in the amounts newly applied in the 1 year, with the largest reduction of minus 14.3 percent for terraces constructed.

Group-enterprise plans for drainage, irrigation, water control, and other types of jobs were developed to benefit over 15,000 farms and nearly 1 million acres. The estimated construction cost for these jobs amounted to more than 5 million dollars, which is to be paid by the farmers and ranchers benefited by such work.

Flood-control operations continued in 11 authorized watershed areas where 28 sub-watershed work plans were prepared for nearly 1,400,000 acres. Works of improvements installed on these projects for flood prevention were somewhat less than the year before because of reductions in staff available for this kind of work.

Emergency farm-land restoration and stream-channel improvement work in the lower Missouri River Basin and along other flooded streams was completed in substantial quantities, mainly by contracts prepared under supervision of SCS technicians. Funds are available for the continuation of such emergency work next year.

During fiscal year 1952, Service technicians assisted about 500,000 ACP participants with permanent-type practices. Of this number about 220,000 were already district cooperators; 70,000 became cooperators during the year, and 210,000 were not district cooperators. Considerable work was done in determining needs for practices, site selection and lay-out, supervision or assistance during installation, and checking or reporting of performance. This work covered parts of the 1951 and 1952 ACP program years.

Perhaps it is too early to become optimistic, but it now appears that Service technicians will help more than a million farmers and ranchers apply needed soil and water conservation practices in 1953. District governing bodies are moving ahead with their local programs as more and more cooperators join their rolls. Cooperation of County PMA Committees and Service technicians has been strengthened in nearly all States. And the interest of landowners and operators to go ahead with their part of the job, leads toward more and better conservation work done faster.

Note.—The author is chief records and reports division, Soil Conservation Service, Washington, D. C.

SOURCE OF INFORMATION.—The editor of the *Dane County* (Wis.) *News* received a gift subscription to SOIL CONSERVATION Magazine from the supervisors of the local soil conservation district. He uses the articles in his paper.

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